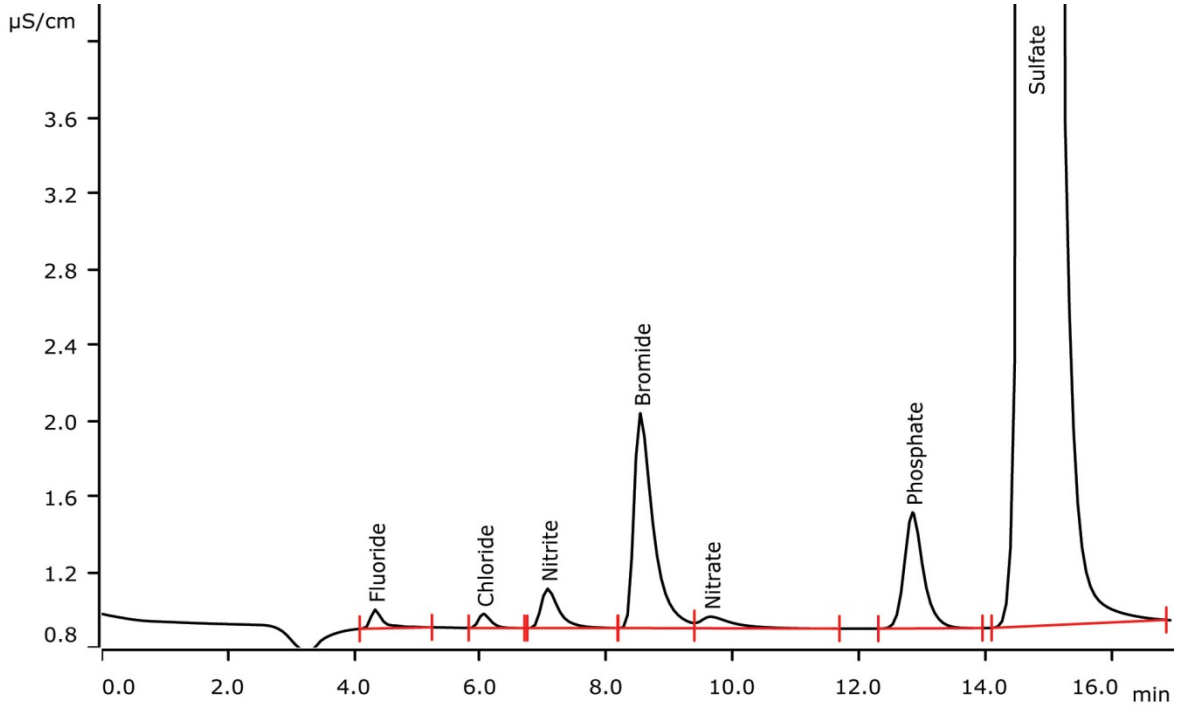
IC Application Note CIC–002

# Halogens and sulfur in residual solvent applying Combustion IC




Determination of fluoride, chloride, bromide, and sulfate in a residual solvent applying combustion as sample preparation with subsequent anion chromatography with conductivity detection after sequential suppression. Analysis is crucial for waste classification in halogen-free and halogen-containing solvents.

## Results

| | Mean [mg/kg] |
|---|---|
| Fluoride | 2.5 |
| Chloride | 7.1 |
| Nitrite | n.q. |
| Bromide | 147.0 |
| Nitrate | n.q. |
| Phosphate (internal standard, [*mg/L*]) | *1.0* |
| Sulfate | 631.2 |

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### Sample

Used methanol

### Sample preparation

Combustion followed by Inline Matrix Elimination

### Columns

| | |
|---|---|
| Metrosep A Supp 5 - 150/4.0 | 6.1006.520 |
| Metrosep A Supp 4/5 Guard/4.0 | 6.1006.500 |
| Metrosep A PCC 1 HC/4.0 | 6.1006.310 |

### Solutions

| | |
|---|---|
| Eluent | 3.2 mmol/L sodium carbonate<br>1.0 mmol/L sodium hydrogen carbonate |
| Suppressor regenerant | 100 mmol/L sulfuric acid |
| Rinsing solution | Ultrapure water |
| Absorption solution | 300 mg/L hydrogen peroxide<br>1.0 mg/L phosphate |

### Analysis

| |
|---|
| Conductivity after sequential suppression |

### Parameters

| | |
|---|---|
| Flow rate | 0.7 mL/min |
| Injection volume | 100 µL |
| $P_{max}$ | 15 MPa |
| Recording time | 17 min |
| Column temperature | 30 °C |

### Combustion parameters

| | |
|---|---|
| Oven temperature | |
| Inlet/outlet | 900/1000 °C |
| Absorption solution | 5.0 mL |

### Instrumentation

| | |
|---|---|
| 881 Compact IC pro – Anion – MCS | 2.881.0030 |
| IC Conductivity Detector | 2.850.9010 |
| 800 Dosino | 2.800.0010 |
| Remote box | 6.2148.010 |
| Mitsubishi AQF-100 | * |
| Mitsubishi ABC-100 | * |
| Mitsubishi WS-100 | * |
| Mitsubishi GA-100 | * |

* from local Mitsubishi distributor / not shown in system graphic below



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